

2.4 WRITING EQUATIONS OF PERPENDICULAR & PARALLEL LINES

RECALL:

Two lines are parallel if they have the same slope.

Two lines are perpendicular if the product of their slopes = -1

↳ Flip & change sign

Ex 1 Write an equation of the line that passes through $(1, -1)$ & is perpendicular to the line $y = -\frac{1}{2}x + 6$.

↳ So $m = 2$

HOMEWORK:

2.4 WORKSHEET

#1-12

$$y - y_1 = m(x - x_1) \Rightarrow \text{POINT-SLOPE FORM}$$

$$y - (-1) = 2(x - 1)$$

$$y + 1 = 2x - 2$$

$$\begin{array}{r|l} -1 & -1 \end{array}$$

$$\boxed{y = 2x - 3}$$

Ex 2 Write an equation of the line that passes through $(3, 2)$ & is parallel to the line $y = -3x + 2$.

↳ So $m = -3$

$$y - 2 = -3(x - 3)$$

$$y - 2 = -3x + 9$$

$$\begin{array}{r|l} +2 & +2 \end{array}$$

$$\boxed{y = -3x + 11}$$

Now, write an equation for parallel in Ex 1 AND perpendicular in Ex 2:

Ex 1 $m = -\frac{1}{2}x$ $(1, -1)$

$$y - (-1) = -\frac{1}{2}(x - 1)$$

$$y + 1 = -\frac{1}{2}x + \frac{1}{2}$$

$$\begin{array}{r|l} -1 & -1 \end{array}$$

$$\boxed{y = -\frac{1}{2}x - \frac{1}{2}}$$

Ex 2 $m = \frac{1}{3}$ $(3, 2)$

$$y - 2 = \frac{1}{3}(x - 3)$$

$$y - 2 = \frac{1}{3}x - 1$$

$$\begin{array}{r|l} +2 & +2 \end{array}$$

$$\boxed{y = \frac{1}{3}x + 1}$$